

Section 847—Miscellaneous Pipe

847.1 General Description

This section includes the requirements for water, storm drain, and sewer pipes. The pipe types are:

- Galvanized steel pipe and fittings
- Steel water pipe
- Copper pipe tubing
- Steel sewer pipe and casing pipe
- Plastic water pipe
- Plastic truss sewer pipe
- Polyvinyl chloride (PVC) sewer pipe and fittings

847.1.01 Related References

A. Standard Specifications

[Section 106—Control of Materials](#)

[Section 848—Pipe Appurtenances](#)

B. Referenced Documents

ANSI B 16.3	ASTM		
AWWA	A 53/A53M	D 2239	F 477
C 201	A 139	D 2241	F 714
C 202	B 88 (B 88M)	D 2680	F 794
C 203	D 1248	D 3034	F 949
C 205	D 1784	D 3212	F 1483
C 301	D 1785	D 3350	
C 900			

847.2 Materials

Each item under this section requires a certification from the manufacturer according to [Subsection 106.05, “Materials Certification.”](#)

847.2.01 Galvanized Steel Pipe and Fittings

A. Requirements

1. Type
Use galvanized steel pipe that meets the requirements of ASTM A 53/A 53M. Use standard weight pipe unless otherwise specified.
2. Use fittings of malleable iron that meets the requirements of ANSI B 16.3, except the nipples and couplings shall be the same material as the pipe.

Section 847—Miscellaneous Pipe

B. Fabrication

Hot-dip galvanize all fittings, nipples, and couplings according to ASTM A 53/A 53M.

C. Acceptance

The Department will accept the pipe and fittings based on the certification or on the results of tests conducted by the Department.

D. Materials Warranty

General Provisions 101 through 150.

847.2.02 Steel Water Pipe

A. Requirements

1. Type

Use materials and requirements indicated in the table:

Material	Meet Requirements of:	Other Requirements
Pipe and fittings	AWWA C 201 or C 202	Use Grade B steel plate. Designate the pipe by operating pressure class.
Bell and spigot joints	AWWA C 202	
Rubber gasket material	AWWA C 301	
Steel-bolted couplings	Subsection 848.2.02	You may join plain-end steel pipe with steel-bolted couplings.
Cement mortar linings	AWWA C 205	
Coal-tar enamel lining and coating	AWWA C 203	

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

The Department will accept the pipe based on the certification.

D. Materials Warranty

General Provisions 101 through 150.

847.2.03 Copper Pipe Tubing

A. Requirements

Use pipe or tubing that meets the requirements of ASTM B 88 (B 88M), Type K.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

The Department will accept the tubing based on the certification.

Section 847—Miscellaneous Pipe

D. Materials Warranty

General Provisions 101 through 150.

847.2.04 Steel Sewer Pipe and Casing Pipe

A. Requirements

Type: Use the material and requirements indicated in the table:

Material	Meet Requirements of:	Other Requirements
Steel sewer pipe and casing pipe	ASTM A 53/A 53M or ASTM A 139	The hydrostatic test is not required.
Bell and spigot joints	AWWA C 202	
Rubber gasket material	AWWA C 301	
Steel-bolted couplings	Subsection 848.2.02	You may join plain-end steel pipe with steel-bolted couplings.
Cement mortar linings	AWWA C 205	
Coal-tar enamel lining and coating	AWWA C 203	

Unless the Plans specify otherwise, use standard weight pipe.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

The Department will accept the pipe based on the certification or on the results of tests conducted by the Department.

D. Materials Warranty

General Provisions 101 through 150.

847.2.05 Plastic Water Pipe

A. Requirements

Type: Use polyethylene (PE) pipe and tubing that meet the requirements of ASTM D 2239 and ASTM F 714, as they apply to PE3408. Use the following pipe sizes and standards:

Pipe Size	Pressure Rating	Other Requirements
1/2 to 3 in (15 to 80 mm) meets ASTM D 2239	200 psi (1.4 MPa) or as specified by Engineer	SIDR (standard thermoplastic pipe dimension ratio) = 7
3 to 42 in (*80 to 1050 mm) meets ASTM F 714	As specified by Engineer	SDR (standard dimension ratio) as specified by Engineer. Use the Iron Pipe Size system.
*Use 3 to 42 in (80 to 1050 mm) pipe for new construction and for replacing old piping systems used to transport water, municipal sewage, industrial process liquids, effluents, slurries, etc., in both pressure and non-pressure systems.		

Section 847—Miscellaneous Pipe

1. Water Service Line Pipe: Use polyvinyl chloride (PVC) pipe that meets the requirements of ASTM D 2241, SDR 21, ASTM D 1785 Schedule 40, or ASTM F 1483, Class 200, (PVC0). Use a PVC compound that meets or exceeds the requirements of ASTM D 1784, Class 12454 B.
2. Water Main Pipe: Use 4 to 12 in (100 to 300 mm) diameter PVC pipe that meets the requirements of AWWA C 900. See the Plans for the designated dimension ratio (DR).

B. Fabrication

Extrude the pipe from resin that meets the requirements of ASTM D 3350 with a cell classification of PE345434 C, and ASTM D 1248 pipe-grade resin Type III, Class C, Category 5, Grade P 34.

C. Acceptance

The Department will accept the pipe based on the certification or on the results of tests conducted by the Department.

D. Materials Warranty

General Provisions 101 through 150.

847.2.06 Plastic Truss Sewer Pipe

A. Requirements

Type: Use plastic truss sewer pipe, couplings, and fittings that meet the requirements of ASTM D 2680, acrylonitrile butadiene-styrene (ABS), and polyvinyl chloride (PVC) composite sewer piping.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

The Department will accept the pipe based on the certification.

D. Materials Warranty

General Provisions 101 through 150.

847.2.07 Polyvinyl Chloride (PVC) Sewer Pipe and Fittings

A. Requirements

1. Type
Use PVC sewer pipe, couplings, and fittings that meet the requirements of ASTM D 3034 (SDR 35), ASTM F 949, or ASTM F 794 (min. pipe stiffness series 46). Ensure that the joints have elastomeric seals that meet the requirements of ASTM F 477.
2. Certification
Certify the joint tightness according to ASTM D 3212 and submit a certification according to [Subsection 106.05, "Materials Certification."](#)

B. Fabrication

Assemble the pipe according to the manufacturer's recommendations.

C. Acceptance

The Department will accept the pipe based on the certification.

D. Materials Warranty

General Provisions 101 through 150.

